REMARKS

Claims 1-5, 10 and 15-20 stands rejected under 35 USC §102(e) as being anticipated by Byers, U.S. patent 6,219,645. Claim 11 stands rejected under 35 USC §103(a) as being unpatentable over Byers, U.S. patent 6,219,645. Claims 6-9 and 12-14 stand rejected under 35 USC §103(a) as being unpatentable over Byers, U.S. patent 6,219,645 in view of Gerson et al., U.S. patent 4,905,288.

Claims 1, 5-8, 11, 15, and 18-19 have been amended to more clearly state the invention. Reconsideration and allowance of each of the pending claims 1-20, as amended, is respectfully requested.

Byers, U.S. patent 6,219,645 discloses a method and system for simultaneously controlling a plurality of automatic speech recognition (ASR) systems within the working volume of a room, or for controlling multiple devices as a single unified ASR system. Multiple microphones feed a signal processing system which determines or estimates both a user's location and a user's orientation within a room as the user issues voice commands, and further determines the microphone providing the best signal. Diversity noise cancellation may be further applied to the microphone signals. Based on the apparent direction the user is facing, the system may then enable one of the ASR systems for voice command recognition and/or execution of voice commands. All of the signals from each of the microphones are directed to a signal processing circuit that compares the amplitude, frequency content, and phase of the signals picked up from the various microphones, and decides the location of the user, and also estimates the user's head orientation. The signal processing circuit can

select the microphone with the cleanest signal, e.g., using a digital signal processing technique to select the best of several spatially diverse sources. Sound takes a different amount of time to travel from the user to each of the microphones arrayed in the room. Each of the microphones receives corresponding signals, where the signal strength or amplitude, phases, arrival times, and frequencies are subject to the user's position and orientation within the room (the time the electrical signals take to get from the microphones to the signal processor is negligible). A delay number is related to the detected delay from the user to the microphone in question, and the microphone having the smallest delay number is initially presumed to be the closest microphone to the user.

Gerson et al., U.S. patent 4,905,288 discloses a method for data reduction in a speech recognition system and an arrangement for reducing a sequence of initial frames into a reduced set of representative frames by combining the initial frames into a plurality of representative frames, the combining process including generating a distortion measure associated with each representative frame and comparing each distortion measure to a distortion threshold. From these representative frames, a set of mutually exclusive frames is determined to minimize the number of representative frames, whereby each representative frame in the set represents a unique set of contiguous initial frames and has an associated distortion measure which does not exceed the distortion threshold. Initially, an untrained speaker-dependent speech recognition system cannot recognize command words. The user manually prompts the device to begin the training procedure. Device controller 130 then directs

switch 215 to enter the training mode. Device controller 130 then instructs speech synthesizer 240 to respond with the predefined phrase TRAINING VOCABULARY ONE, which is a "canned" response obtained from reply memory 260. The user then begins to build a command word vocabulary by uttering command words, such as STORE or RECALL, into microphone 205. The features of the utterance are first extracted by acoustic processor 110, and then applied to either word averager 220 or data reducer 230. Word averager 320 combines several utterances of the same word spoken by the user to provide a more reliable template. Speech recognizer 326, which performs the actual speech recognition comparison process, may use one of several speech recognition algorithms. The recognition algorithm of the present embodiment incorporates near-continuous speech recognition, dynamic time warping, energy normalization, and a Chebyshev distance metric to determine a template match. The recognizer control block 730 is used to coordinate the recognition process. Coordination includes endpoint detection (for isolated word recognition), tracking best accumulated distance scores of the word models, maintenance of link tables used to link words (for connected or continuous word recognition), special distance calculations which may be required by a specific recognition process and initializing the distance ram 734. The recognizer control may also buffer data from the acoustic processor. For each frame of input speech, the recognizer updates all active word templates in the template memory.

The present invention, as recited in independent claims 1, 11 and 15, as amended, provides a method, computer program product, and apparatus for providing location-specific responses in an automated voice response system. Each of the

independent claims 1, 11 and 15, as amended, is patentable over all the references of record including Byers and Gerson et al. Independent claim 1, as amended, recites a method for providing location-specific responses in an automated voice response system. The method comprising the steps of: receiving a microphone signal from each of a plurality of microphones; identifying a spoken command utilizing speech recognition responsive to each said received microphone signal; storing a command start time and a command length for said identified spoken command and a channel number for corresponding to one of said plurality of microphones utilizing said speech recognition; identifying a sound location vector responsive to each said identified spoken command utilizing said command start time, said command length for said identified spoken command and said channel number; and providing a response command based upon said sound location vector.

Independent claim 15, as amended, recites apparatus for providing location-specific responses in an automated voice response system comprising: a plurality of microphones located within a defined environment for receiving a sound within said environment and each of said plurality of microphones providing a microphone signal; a respective speech recognition unit coupled to each one of said plurality of microphones; each said speech recognition unit for identifying spoken commands responsive to said microphone signal and for storing a command start time, a command length for said identified spoken command and a channel number for corresponding to one of said plurality of microphones utilizing said speech recognition unit; a digital analysis unit coupled to said speech recognition unit for identifying a

locational origin of said spoken command within said environment utilizing said command start time, said command length for said identified spoken command and said channel number; and applying said identified locational origin to a processor; and said processor for providing a response command based upon said identified locational origin of said spoken command within said environment.

The standard for lack of novelty, that is, for "anticipation," is one of strict identity. To anticipate a claim for a patent, a single prior source must contain all its essential elements. To anticipate under section 102, a prior art reference must disclose all the elements of the claimed invention or their equivalents functioning in essentially the same way. The Byers patent does not disclose all the elements of the claimed invention of independent claims 1 and 15, as amended.

More specifically, the Byers patent does not disclose the steps of identifying a spoken command utilizing speech recognition responsive to each said received microphone signal; storing a command start time and a command length for said identified spoken command and a channel number for corresponding to one of said plurality of microphones utilizing said speech recognition. The Byers patent does not disclose a respective speech recognition unit coupled to each one of said plurality of microphones; each said speech recognition unit for identifying spoken commands responsive to said microphone signal and for storing a command start time, a command length for said identified spoken command and a channel number for corresponding to one of said plurality of microphones utilizing said speech recognition unit.

Thus, each of the independent claims 1 and 15, as amended, is

patentable over the Byers patent. Further the Byers patent does not disclose the steps of identifying a sound location vector responsive to each said identified spoken command utilizing said command start time, said command length for said identified spoken command and said channel number. The Byers patent does not disclose a a digital analysis unit coupled to said speech recognition unit for identifying a locational origin of said spoken command within said environment utilizing said command start time, said command length for said identified spoken command and said channel number; and applying said identified locational origin to a processor; and said processor for providing a response command based upon said identified locational origin of said spoken command within said environment.

The references of record including Byers and Gerson et al. do not render obvious the claimed invention and each of the independent claims 1 and 15, as amended, is patentable. No objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art suggests the claimed subject matter of independent claims 1 and 15, as amended. The references of record including Byers and Gerson et al. fail to suggest or provide any objective teaching of a method and apparatus for providing location-specific responses in an automated voice response system as taught and claimed by Applicants. Only applicants teach the steps of or a speech recognition unit for identifying a spoken command utilizing speech recognition responsive to each said received microphone signal; storing a command start time and a command length for said identified spoken command and a channel number for corresponding to one of said plurality of microphones utilizing said speech recognition,

as expressly recited in amended independent claims 1 and 15. Thus, each of the independent claims 1 and 11 is patentable.

Independent claim 11 recites a computer program product for providing location-specific responses in an automated voice response system including a processor, said computer program product including a plurality of computer executable instructions stored on a computer readable medium, wherein said instructions, when executed by a processor, cause the processor to perform the steps of: receiving a digitized audio signal from each of a plurality of microphones; utilizing speech recognition to identify a spoken command responsive to said received digitized microphone audio signal from each of a plurality of microphones including the steps of identifying said received microphone signal for a predetermined person and identifying said spoken commands only from said identified predetermined person; identifying a sound location vector responsive to each identified spoken command; and providing a response command based upon said sound location vector.

The Byers patent does not disclose the steps of utilizing speech recognition to identify a spoken command responsive to said received digitized microphone audio signal from each of a plurality of microphones including the steps of identifying said received microphone signal for a predetermined person and identifying said spoken commands only from said identified predetermined person. Gerson et al. adds nothing to suggest the use of this feature in a computer program product for providing location-specific responses in an automated voice response system. Gerson et al. teaches the use of a speech recognition system for particular users. However, neither Byers nor

Gerson et al. provides any remote suggestion of identifying said spoken commands only from said identified predetermined person as taught and claimed by Applicant in independent claim 15. Thus, independent claim 15 is patentable.

Dependent claims 2-10, 12-14 and 16-20 respectively depend from patentable independent claims 1, 11 and 15 and further define the invention. Thus, each of the dependent claims 2-10, 12-14 and 16-20 is patentable.

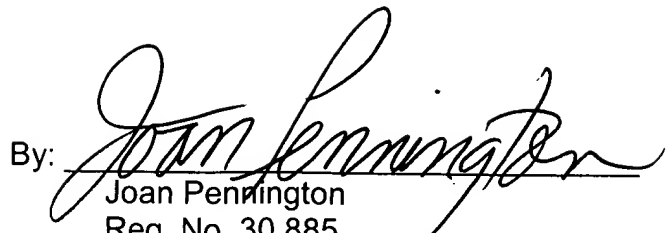
Further the steps of adding a clock signal to each digitized microphone signal and the use of a clock adder as recited in representative dependent claims 2, 4, 17 and 18 is not shown nor suggested by the references of record. Applicant respectfully submits that the subject matter of dependent claim 6 is not shown nor suggested by the references of record.

Applicants have reviewed all the art of record, and respectfully submit that the claimed invention is patentable over all the art of record, including the references not relied upon by the Examiner for the rejection of the pending claims.

It is believed that the present application is now in condition for allowance and allowance of each of the pending claims 1-20, as amended, is respectfully requested. Prompt and favorable reconsideration is respectfully requested.

If the Examiner upon considering this amendment should find that a telephone interview would be helpful in expediting allowance of the present application, the Examiner is respectfully urged to call the applicants' attorney at the number listed below.

Respectfully submitted,

By: 

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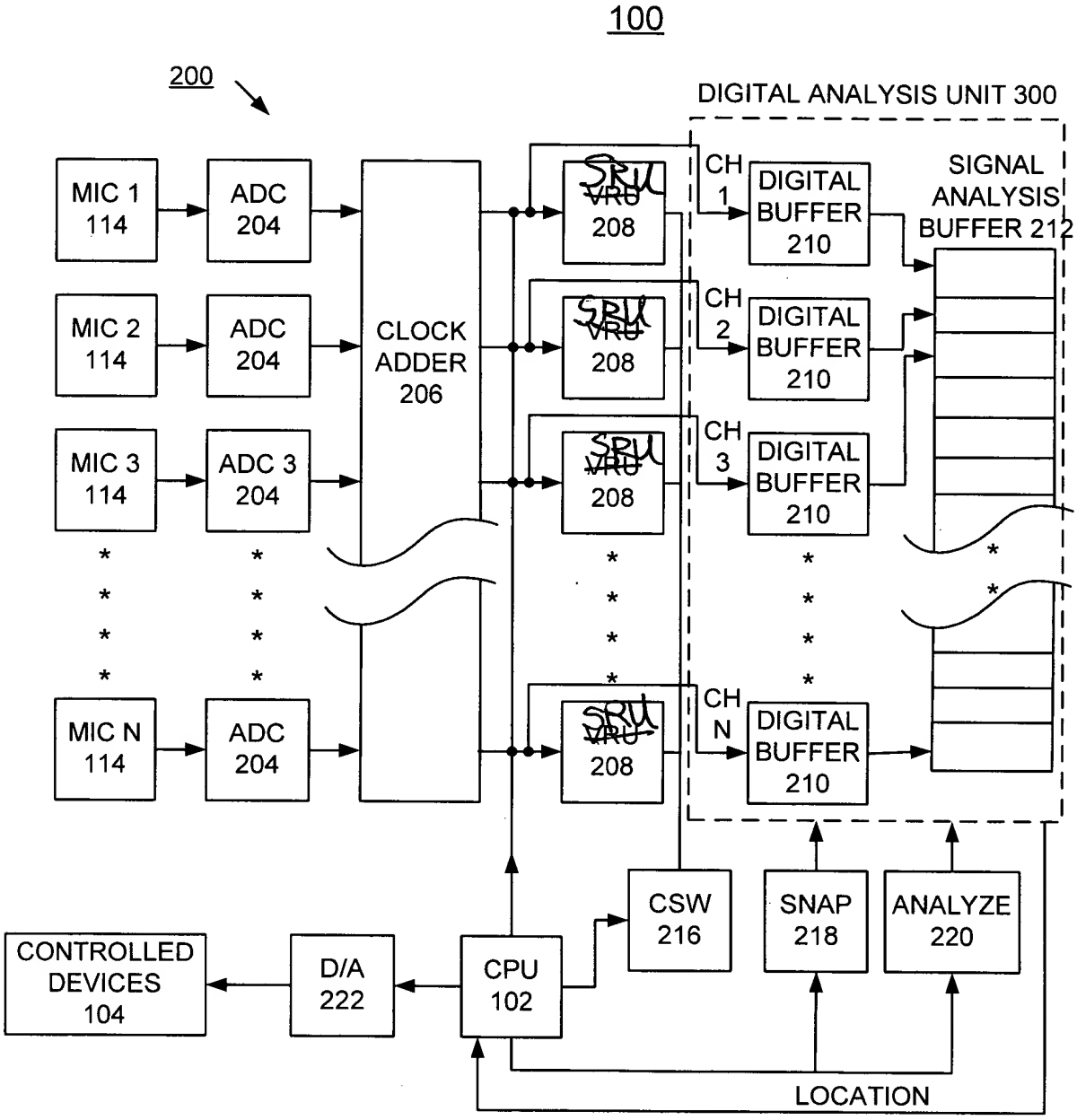
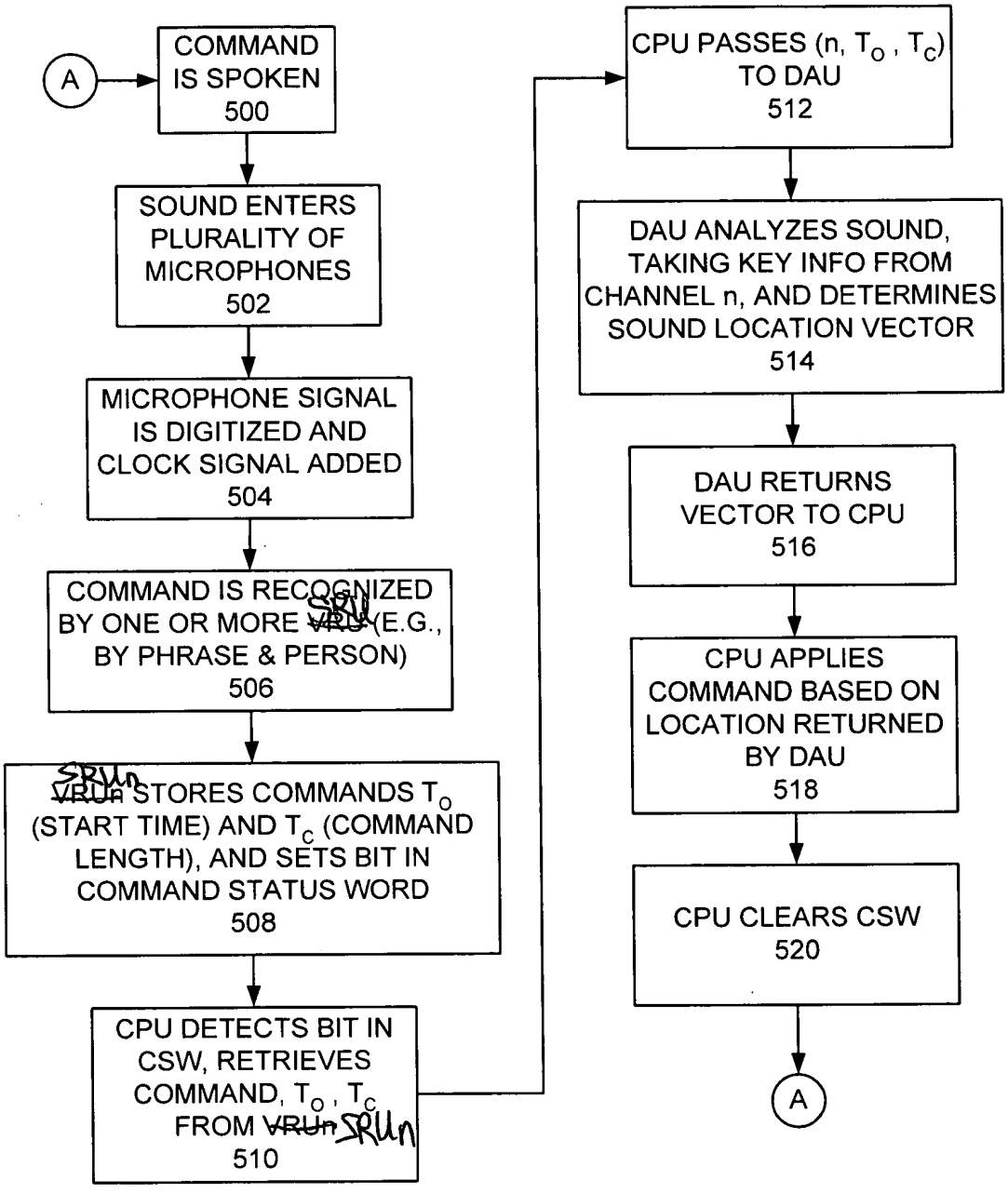

100
200
DIGITAL ANALYSIS UNIT 300
MIC 1 114
MIC 2 114
MIC 3 114
MIC N 114
ADC 204
ADC 3 204
CLOCK ADDER 206
SRU VRU 208
CH 1
CH 2
CH 3
CH N
DIGITAL BUFFER 210
SIGNAL ANALYSIS BUFFER 212
CSW 216
SNAP 218
ANALYZE 220
CPU 102
D/A 222
CONTROLLED DEVICES 104
LOCATION

FIG. 2

FIG. 5


A
COMMAND IS SPOKEN 500
SOUND ENTERS PLURALITY OF MICROPHONES 502
MICROPHONE SIGNAL IS DIGITIZED AND CLOCK SIGNAL ADDED 504
COMMAND IS RECOGNIZED BY ONE OR MORE SRUn (E.G., BY PHRASE & PERSON) 506
SRUn STORES COMMANDS T_O (START TIME) AND T_C (COMMAND LENGTH), AND SETS BIT IN COMMAND STATUS WORD 508
CPU DETECTS BIT IN CSW, RETRIEVES COMMAND, T_O , T_C FROM SRUn 510
CPU PASSES (n, T_O , T_C) TO DAU 512
DAU ANALYZES SOUND, TAKING KEY INFO FROM CHANNEL n, AND DETERMINES SOUND LOCATION VECTOR 514
DAU RETURNS VECTOR TO CPU 516
CPU APPLIES COMMAND BASED ON LOCATION RETURNED BY DAU 518
CPU CLEARS CSW 520
A

In the Drawings:

Please amend FIGS. 2 and 5 of the drawing sheets 2/6 and 5/6 to change VRU 208 to --SRU 208-- in FIG. 2 and at respective blocks 506, 508 and 510 to change "VRU" to --SRU-- and to change "VRUn" to --SRUn-- in FIG. 5. Provided as an appendix herewith is a replacement formal drawing sheet for each of the drawing sheets 2/6 and 5/6 together with a marked-up copy showing changes made in red.